

# MUSEUM STORIES FOR CHILDREN

*Presented by*

*The James Nelson and Anna Louise Raymond Foundation  
for Public School and Children's Lectures*



Series XVI, Number 1

February 21, 1931

FIELD MUSEUM OF NATURAL HISTORY

Roosevelt Road and Lake Michigan  
CHICAGO

## SIR STICKLEBACK, THE HEDGEHOG

Hedgehogs do not live in North America but in Europe, Asia, and Africa. They have been living there for centuries and in some parts of England they seem to thrive in gardens and in hedges, thus the name, "hedgehog."

This little creature, eight to ten inches long, is something like a pig and is covered on the upper parts with yellowish colored, sharp spines and so we shall call him Sir Stickleback.

Sir Stickleback remains hidden in the hedges and bushes all day, but at night he comes out to root around for food. He is really rather slow most of the time, but the sight of a nice looking worm makes him move his short little legs faster. His beady, black eyes sparkle and his moist, black snout quivers in anticipation of that tasty worm. A stubby tail seems to stick straight out as he wiggles and squirms for food. Not always does Sir Stickleback feed on worms; he likes birds' eggs and insects such as beetles, cockroaches and crickets. Because of his taste for such insects, he is sometimes kept in the house to rid it of these pests.

What do you suppose Sir Stickleback would do if he should meet you? In the first place he would stop and listen, put his head down and make those little spines stand straight up on his back. If you passed on without bothering him, he would straighten up and go on hunting worms; but if you should annoy him, he would roll up into a tight little ball of spines. Those spines are hard but not brittle and so will not break. You could roll him all around and still he would be unhurt. Sir Stickleback is slow, he can neither fight nor run away, but he can roll himself into a coat of armor that almost every animal respects.

Once in a while a fox terrier dog will brave those spines and succeed in killing a hedgehog, but not often. Even if the dog does come out the winner, he is a sorry looking creature, showing the marks of that battle. While the fox terrier is giving the final blows of victory, the hedgehog is sending out some pathetic and screeching cries of pain that sound almost human. Ordinarily the hedgehog gives only a squeak that becomes louder with excitement or fear.

Occasionally a hedgehog will attack a snake. He seizes the snake's tail in his mouth, hangs on and rolls up into a ball of spines. The snake darts at the hedgehog to loosen his tail but each strike is a

painful one against those spines. Finally the snake kills itself just by hitting the hedgehog.

If Sir Stickleback should be at the top of a hill or ledge and wanted to get to the bottom, he would roll up into his ball of spines and then roll over and down. Of course, in a very short time he would reach the bottom where he would calmly uncurl himself and shuffle off again.

Sometimes, something gets in amongst his spines and tickles Sir Stickleback. This ticklish spot is rather hard to reach so Sir Stickleback just spits at it.

Two families of five to seven young are raised each year, one in the spring and one in the fall. A nest of dry leaves in some hedge is their home for a time. These little hedgehogs are blind at first and covered with soft, pale spines. In the fall each hedgehog rolls himself up in some dry leaves and goes to sleep in a burrow until spring.

An interesting old legend is connected with the hedgehog. Some people believe it and some say it is only another legend handed down through the centuries. According to this old belief, the hedgehog likes certain fruits to eat, such as apples, pears and grapes; the young hedgehogs seem to be especially fond of them. When the dusk of evening begins to darken, the old hedgehog slowly shuffles out to the orchard. He pushes and gathers the scattered fruits into one pile and then deliberately throws himself on his back in that pile and rolls around. The fruits stick on the sharp spines so when he once more rights himself his back is covered with fruits fastened to the spines. Then he easily carries a load of fruits home to the hungry youngsters in the nest. This occurrence has actually been seen by a few people and so probably really does happen occasionally.

Formerly, gypsies, living in England, ate hedgehogs. They were fond of them roasted with potatoes.

Thus Sir Stickleback, whose ancestors were known to the ancients centuries ago, wanders around at dust unmolested. Protected only by his coat of spines he goes about his own harmless business.

MIRIAM WOOD, Guide-lecturer

Note: In Hall 15 you may see a hedgehog in the case with the moles and shrews.

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STEPHEN C. SIMMS, Director

# MUSEUM STORIES FOR CHILDREN

*Presented by*

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Series XVI, Number 2

February 28, 1931

FIELD MUSEUM OF NATURAL HISTORY

Roosevelt Road and Lake Michigan

CHICAGO

## GLIMPSES OF ANT LIFE

Once upon a time, there lived a king, named Solomon, who advised a sluggard to go and study the ways of the ant.

Ants are worth studying, and the better we become acquainted with these insect neighbors, the more we understand what Solomon meant, and also, why he was called "a very wise ruler."

There are many kinds of ants. Some are masons and carpenters; some are farmers and herders, while others are warriors. All are inhabitants of dark places and have a kind of village life in which each ant has a definite bit of work to do.

No matter what the type of village, the ants will be divided into three distinct classes. There will always be queens, males and workers. The queen ant is really not a ruler at all. She is almost a slave, for after she has married a winged male ant, she pulls out her own wings, goes into a dark hole and starts a new ant village.

The first eggs she lays are all of one kind and hatch into workers. As soon as these workers are fully grown and able to care for the eggs and the larvae which come from the eggs, the queen becomes a prisoner in a special part of the village. She is fed and carefully cleaned and tended, but she must do as the workers wish. She must lay eggs.

From these eggs will come other workers, some males and some queens. When the males and queens are growing they receive the best of food and care, but as soon as grown, are driven from the village by the workers. For a time they fly about in the air, find mates and have a joyous honeymoon. Then the males drop from sight and soon die, for they do not know how to feed or care for themselves.

As among bees, the workers are the ones upon whom the success of an ant village depends. If the village is to be guarded, the soldiers take their places; if slaves are needed, an enemy stronghold is attacked and the young larvae stolen.

Sometimes, the workers are large, and again they may be dwarfs. But whatever the size or color, each worker does his definite bit of work without having any commander or leader to direct that work.

Perhaps when crossing a pasture, you have turned over a large flat stone and discovered to your amazement that underneath was a network of paths and tunnels leading into the ground, and that hundreds of ants were disappearing through those passageways tumbling over each other in an effort to carry some tiny bundles into the village below.

Oh! what confusion you caused by lifting that stone. The ant nurses had brought the baby antlings up where they might feel the warmth of the stone above and yet be in the darkness. There may, too, have been aphids, hidden under that stone.

Aphids are sucking insects. With their hard, round beaks they pierce plants and draw out the juices. These are changed into a milky substance in the aphid's body.

Ants are very fond of aphid milk, so the aphids are carefully herded that there may be food for the queens and young ants when needed.

A large community of Honey Ants is found in the Garden of the Gods in Colorado. The rock here is a red sandstone. Often, wind and rain have carved the upstanding cliffs into grotesque shapes which give the place its name. Between the higher ledges lie many lower ridges, and it is on these the workers of the Honey Ant colonies have mined the rock and built their villages.

Such a village will often be as much as eight feet long, three feet high and one and a half feet wide and will consist of wide hallways and numbers of galleries. Sometimes the floors and ceilings of the rooms will be smooth. Again the floor will be smooth, but the ceiling will be rough.

Could you look into a room of the latter kind you would indeed be surprised. Hanging with their feet clasping the rough rock ceiling are hundreds of ants, so full of honey that their little bodies look like little barrels of gold.

This honey is secured during the darkness of night, from galls growing on a kind of scrub oak tree. Drop by drop a sugary sap drips from the gall cases and is collected by the workers who feed it to the ants hanging upside down from the rough ceilings in the red sandstone villages near-by. They are the holders of the honey until it is needed. Then by muscular movement it is squeezed out of the golden barrels, and fed to males and queens, to worker or antling, as the case may be.

Indians and Mexicans long ago discovered that this ant honey was delicious as a relish and useful as a medicine for bruised limbs.

Watch ants whenever you have an opportunity. The things they do place them very high in the insect world.

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STEPHEN C. SIMMS, Director

# MUSEUM STORIES FOR CHILDREN

*Presented by*

*The James Nelson and Anna Louise Raymond Foundation  
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Series XVI, Number 3  
March 7, 1931

FIELD MUSEUM OF NATURAL HISTORY  
Roosevelt Road and Lake Michigan  
CHICAGO

## BOATS

Many years ago a boat was not a comfortable vessel, lovely to see, nor was it a pleasure to ride in one as now. The very earliest boats were used only when necessary.

Probably the first boat was a stick of wood onto which the person clung and paddled with his hands. Then perhaps came the idea of several sticks or logs fastened together making a raft that would float and could be pushed along by poles. The raft was better, but the water still washed up over the sides.

The next step was a large one—to build up the sides of this raft to keep the water out. With this same result in mind, the idea developed to hollow out a log, making the log-boat lighter and able to carry more weight. This hollowed-out log was called a dug-out canoe. When the first white men came to our shores, they found the Indians using these dug-out canoes and canoes made of birch bark.

In making the dug-out canoe, the log was selected with great care and hollowed out by means of stone tools and by burning. Not only did the Indians of North America use such canoes, but the peoples of the Pacific, especially the Maori of New Zealand, used them. These people were very fine wood carvers and demonstrated that art in decorating their canoes and paddles. Especially did they decorate their war canoes. Wonderfully carved large, wooden figures were placed on the bow and stern of each great war canoe. These carved figures were often painted and decorated with feathers.

Small dug-out canoes were used by the Maori people as fishing boats but no carved figures were placed on them. Some of the small canoes had outriggers. An outrigger is a narrow plank or log fastened parallel to the canoe by poles. It prevents the boat from overturning.

A few of the boats from New Zealand and Australia were made of bark. At first the bark canoe was made of just one piece of bark which curled up at the ends and was sewn together and the seams were covered with gums. Later, the bark canoe was made of several pieces of bark sewn together over a framework of wood. These simple canoes were frequently used by the women going to the fishing grounds. The woman paddling the canoe kneeled down and sat on her heels, bracing her knees against the sides. Often the balance was made more difficult when a child had to go along with his mother. The mother would

place the child on her shoulders; he would curl his legs around her neck and cling to her hair with his hands.

In some places in the world queer boats are used even today. In Ireland, on certain lakes, a small round boat, just large enough for one person, is used. It is called a "coracle." It is made of skin stretched over a framework of wood. Very frequently goatskin is used so the boat is often called a goatskin boat. Some of the old fishermen use these boats.

If you visited Mesopotamia and sailed along the Tigris or Euphrates Rivers, perhaps you would see a large round basket being paddled along the river. This boat is called a "goofah." It is woven of willow twigs and daubed over with pitch on the inside making it waterproof. It has been said that Moses was set adrift in a basket boat of this type.

The Eskimos, having very little wood, bark or reeds for boats, make a framework of wood or bone and cover it tightly with seal skins. The Eskimo boat is called a "kayak." While the shape is somewhat like that of a canoe, the top of the boat is not open as a canoe but is tightly covered over with skins except for one small opening in the center. The Eskimo sits in this hole, ties his raincoat around it so that no water can get in and goes fishing on the rough seas. The light weight kayak rides the waves; sometimes it goes under the waves, but no harm is done to the waterproof boat nor to the Eskimo in his raincoat.

In ancient times no sails were used on the boats of North and South America but in Europe and Asia sails have been used for thousands of years. The Vikings crossed the Atlantic partly by sails and partly by oars. Gradually the small boats gave way to larger boats with huge sails that caught the wind, and became known as ships.

Today we sail the seas in ships beyond the wildest dreams of the ancient navigators. However, here and there in the world small, crude boats such as rafts, dug-out canoes and bark canoes are still being used.

MIRIAM WOOD, Guide-lecturer

Note: Boats or boat models may be found in the Museum as follows: kayak, Hall 10; Indian dug-out canoe models, Hall 4, Hall 10; Indian birch bark canoe models, Hall 4, Hall 29; Egyptian boat, Hall J; Maori canoe paddles, Hall F; outrigger canoe model, Hall F.

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STEPHEN C. SIMMS, Director

# MUSEUM STORIES FOR CHILDREN

*Presented by*

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Series XVI, Number 4  
March 14, 1931

FIELD MUSEUM OF NATURAL HISTORY  
Roosevelt Road and Lake Michigan  
CHICAGO

## BEARS

Among the four-footed dwellers of the woods, there is none better known or more interesting than the bear. Like many other large animals its reputation has suffered from stories which tell of its fierceness and bad habits. Most of these stories are not true. Like a true gentleman, the bear tries to avoid trouble, but when his peaceful efforts fail he fights savagely.

Most of the year the bear wanders about alone. In June it mates and the pair travel together for a short time. By late July, the honeymoon is over and they separate, each going its own way.

The bear eats everything from ants to elk. It is very fond of honey and will go miles for it. During the late summer it becomes very fat feeding on berries, roots and acorns, and when cold weather comes it hunts a hollow tree or cave in which to sleep. Thus it spends the winter, curled up in its den. In the spring it comes out not as fat as when it went into its den.

In January, while the female is still hibernating, the two tiny, blind and almost naked cubs are born. It is two months before they and their mother leave the den. She is very proud and jealous of her cubs, fighting savagely anything she thinks might harm them. These playful, mischievous youngsters box, wrestle and play in a very funny way.

In North America, the bears might be grouped into the Grizzly Bears, Alaska Brown Bears, Black Bears and Polar Bears.

The Grizzly Bear is one of the largest and most powerful of the family with long claws and the tips of the hairs of its dark coat a grizzled gray, which gives it the name of Grizzly or Silver Tip. It roams the mountains of Western North America, where from the days of the earliest explorers it has been known as America's fiercest and most dangerous big game animal. In the early days, it was bold and indifferent to man, but when the white hunter came with his powerful rifle, the Grizzly soon learned its danger and it is now very shy; the slightest sound or smell of man causes it to flee at a lumbering but very fast gallop.

He is a solitary monarch of the mountains, dignified and unafraid, eating everything that grows, animal or vegetable; unwilling to quarrel with man, but terrible when aroused to anger or revenge.

The Kodiak or Alaska Brown Bear is the largest meat-eating animal in North America. In Alaska and the neighboring islands, where it

roams over the rocky country, it eats most anything it can find. In June when the salmon go up the streams to lay their eggs, it spends hours fishing, throwing the fish up on the bank with a quick scoop of its long claws. In the fall it eats grass like a cow, becomes very fat and hibernates.

As a rule this bear is a shy, peaceful giant, fleeing at the first sight or smell of man, but when wounded or suddenly surprised at close quarters, it attacks its enemy furiously.

The Black Bear is one of the most amusing and playful of all wild animals and is often called the "Clown" and the "Happy Hooligan" of the woods.

It can climb as soon as it can walk. The first thing a Black Bear mother does when danger threatens, is to send her cubs up a tree where they stay until she calls them, when they slide down backward and amble away. Even when grown, the Black Bear will often climb a tree for safety.

It is very shy about all strange or doubtful things and its motto is, "When in doubt, run." When it smells or hears a man, it slips away like a black shadow, travels for miles at a fast pace until far away from the hateful smell and sound.

The Polar Bear of the Arctic is dressed in white the year around to match the ice and snow. It is the most powerful swimmer of the family and enjoys swimming in the icy water, looking for seals and walruses. On land it wanders over the ice floes, feeding on whatever it can find.

Polar Bears do not hibernate. In a den under the ice and snow, the two cubs are born. A very devoted mother cares for the cubs and protects them until they are grown.

In the immense barren regions of the Arctic, where this "Ice King" can live his life undisturbed, there are many that pass their lives unknown and undisturbed by their enemy—man.

In foreign countries are found the cousins of our bears. The Brown Bear is found in Europe and in Asia the Himalayan Black Bear, while the little Sloth Bear is found in India and the Sun Bear in the Malay Peninsula.

GORDON S. PEARSALL, Guide-lecturer

Note: In Hall 16 may be seen family groups of Grizzly Bears, Kodiak Bears and Polar Bears, and in Hall 15, different phases of the Black Bear.

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STEPHEN C. SIMMS, Director

# MUSEUM STORIES FOR CHILDREN

*Presented by*

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Series XVI, Number 5

March 21, 1931

FIELD MUSEUM OF NATURAL HISTORY

Roosevelt Road and Lake Michigan

CHICAGO

## THE WEASEL AND THE MINK

Many a boy or girl has dreamed of being a king or queen and appearing before the courtiers dressed in purple velvet robes trimmed with bands of ermine. In the old days this lovely fur was too expensive for any except the wealthy to wear. Today, it is still expensive, but much more common than formerly.

Ermine is really the winter coat of a small animal known as the weasel. It is an odd little fellow with a flat, pointed head, short legs and slender body. Although so small it is a bold, fierce hunter, often killing animals several times its own size. It often kills just for the mere love of killing, so we are not surprised to learn that the weasel is the terror of all small animals. Rabbits and large rats will even allow themselves to be killed without any fight.

The keen-witted, active weasel hunts swiftly and tirelessly, darting in and out of burrows, crevices and brush piles. It investigates every nook and cranny, pausing, now and then, to stand upright on its hind feet, its head swaying to and fro, as it peers about for prey.

Sometimes, it follows tracks by means of its keen scent and makes the fatal spring when least expected. Sometimes, it follows small animals through underground passages to their hiding places. In this way it destroys great numbers of rats, mice and ground squirrels. As these are destructive to crops and orchards, the weasel may be classed as beneficial. However, the farmer does not consider him a friend when the little scamp enters a hen-house and kills as many as thirty of his chickens in one night.

During the summer, the weasels wear brown coats. As cold weather comes and snow covers the ground, the coat gradually changes to white, with just the tip of the tail black, if it happens to carry such a black decoration. It is the white, soft, thick coat which is known as Ermine. The larger the weasel, the more valuable the pelt. The Bonaparte Weasel and the New York Weasel are the most common in our country. The Least Weasel is but six inches long and is completely white in the winter.

Among the Eskimos and Indians, the weasel is looked upon with great respect, because it is such a great hunter. The capture of a weasel, among these peoples, is believed to bring good luck to the hunter. Fathers used to buy the skins of weasels, if they could not secure them otherwise, to fasten to the belts worn by their sons, that

the youthful hunters might become filled with the hunting spirit of this "little chief" among mammals. The chiefs treasured weasel pelts for decorating their war-bonnets and shirts.

Another animal belonging to the same family is the mink. It is larger than the weasel and is often called the "water weasel." It too has a beautiful coat of soft, silky fur. The color is dark brown the year round. It boasts a little white mark under the chin. This is a good thing to look for if you think you have caught a mink, but are not absolutely sure. The tail is bushy and is rather long.

Minks are expert hunters, whether on land or in water. They steal stealthily through the thickets hunting for mice and rabbits, or even larger woodland creatures. At another time, several may be found swimming in the water hunting for muskrats or fish. The animals so found are for food. The mink does not kill for the mere fun of killing as does the weasel.

In April, the mother mink makes a comfortable nest in some hole in a hollow stump or log near a stream. It is there the five or six blind, naked and helpless youngsters are born. During the summer the mother teaches her babies to hunt and take care of themselves. By the time the cold weather arrives, they are well-trained and leave the mother. It is the winter coat which brings such a high price on the fur market.

Besides the weasels and minks, this animal family has other famous fur-bearers. In North America the cousins are martens, fishers, wolverines, otters, skunks, ferrets and badgers. In Europe, are found ratels and stoats as well as the animals just mentioned. All have scent glands, all do much toward keeping down the numbers of mice and other rodents, and all have valuable pelts.

GORDON S. PEARSALI, Guide-lecturer

Note: In Hall 15 will be found an exhibit showing a family of weasels and other members of the family; in Hall 13, in the Chicago Mammal Case, are two weasels in winter coats, or in the "ermine form," and among the Indian exhibits of men's costumes are many showing the use of weasel skins.

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Series XVI, Number 6

March 28, 1931

FIELD MUSEUM OF NATURAL HISTORY

Roosevelt Road and Lake Michigan

CHICAGO

## DEEP SEA FISHES

Strange and beautiful creatures live in the great oceans of the world. In shallow seas are millions of animals and plants. Divers often go down through the clear, sunlit water, to walk about on the sea bottom thirty, forty or more feet below the surface. In warm, tropical seas, they can enjoy underwater gardens of corals, seaweeds, and fishes that look like gorgeous, many-colored, moving flowers.

The greatest depth to which a diver can go is not much more than a hundred feet, even though he wears a diver's suit with a helmet and tube for air. Deeper than that, the tremendous pressure of so much water above would kill a man. Even submarines cannot go more than a few hundred feet down. Recently two men, in a specially made ball of steel with thick windows of quartz, were able to get down a little more than a quarter of a mile, by far the deepest that any men have ever gone.

In many places the ocean is more than a mile deep. In a few spots its bottom is more than five miles from the bright surface waters. Sunlight cannot pierce through so great a depth of water, and the lower levels are always cold. Yet even there many fishes have their homes. By letting weighted nets down into the depths, it is possible to catch some of them and bring them to the surface.

The sudden loss of the great pressure to which they have been accustomed usually kills deep sea fishes on the way up. Many of them have loosely made bodies which are held together by the pressure of the water, and which fall to pieces or turn inside out as they are brought out into the air. Since we cannot go down where these creatures live, and watch them in their homes, and since they cannot be kept alive more than a few hours in aquariums, we do not know much about their habits.

Most of them are not as beautiful as many of the more familiar fishes. Instead of red, yellow, green, or purple, they are usually plain black. Many have queer shapes. Some are long and narrow like strips of ribbon; others are thick and bulging. Some are so thin that they are transparent, and look like strips of living tissue paper. Some have jaws which are prolonged into slim points, curving gracefully apart, and ending in little balls, like the antennae on a butterfly's head. Some have no eyes, and others have eyes in unusual places, such as at the tip of the nose or on top of the head.

Strange as it may seem, many of the deep sea fishes carry little lanterns of their own, for parts of their bodies are phosphorescent. That means that they shine in the dark, like fireflies, glowworms, or clock and watch dials which have been treated with radium.

Several groups of deep sea fishes are able to swallow fish larger than themselves. One of these is the gulper eel. Its mouth is about seven times as large as the rest of its head. Its body is ribbon-like, except that just behind its mouth is the loose bag of its stomach. When the gulper eel catches another fish, even one perhaps several times its own size, its jaws take hold and gradually reach farther and farther over the larger fish. Its stomach stretches like a bag of rubber. The fish which is being eaten may swim about as much as it likes, but it cannot get away, for the eel rides right along. Even while its tail reaches far into the gulper's stomach, the fish which is being eaten may catch some other fish and enjoy a last meal before it disappears. The black swallower, which also has an elastic stomach, has been known to swallow fish twice its own length and more than six times its size. Such an enormous meal has sometimes proved too much even for the swallower. More than one has been found floating on the surface, having died of indigestion.

Fins of deep sea fishes often take surprising forms. They may become sharp pricklers, or grow so long and slender that they trail about the fish like feather plumes or ribbon streamers. Some long-finned fishes can hold their fins out straight or raise them like tiny flagpoles. Perhaps they serve the blind fish as a cane helps a blind man to find his way.

The deep sea angler has a long, slender fin spine which seems to grow out of the top of its head. At the end of the spine is a little swelling, which in some members of the family makes a tiny light. Probably the purpose of this arrangement is to attract other fish for the angler to eat. If this is true, then the angler is really a fisherman-fish, angling for other fish with a bait, and with its own hungry jaws for the hook.

Thus you see that fishes are provided with whatever is needed to help them live where Nature has placed them.

JUNE WORK, Guide-lecturer

Note: In Albert W. Harris Hall of Field Museum are many strange and beautiful fishes.

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Series XVI, Number 7

April 4, 1931

FIELD MUSEUM OF NATURAL HISTORY

Roosevelt Road and Lake Michigan  
CHICAGO

## PEARLS

One of the loveliest of all the precious gems is the pearl. It has been treasured by poor and rich alike since the earliest times. It is mentioned often in Bible stories, and in old legends of the oriental countries.

While diamonds, rubies and emeralds are minerals which owe much of their beauty and cost to the expert cutting necessary to bring out their marvelous lights, the pearls owe nothing to the hand of man. Rather are they growths of water animals known as mollusks.

You are all familiar with the mollusk known as the oyster. If you look carefully at the shell of the oyster, you find it consists of a hard, rough outer part, and a more or less smooth inner part or lining. The animal oyster is attached to the inner part, and secures its food entirely from the water which it sucks into its shell. Among the various foods it needs are some having carbonate of lime. It is this food which makes the shell and the inner lining or mantle. This mantle is often called "Mother-of-pearl." The brightly-colored pearl buttons used on our garments come from inner shell linings which have much color, while the white pearl buttons are from the outer parts of the shell or from shells which had no bright colors.

Sometimes, in drawing in water, the mollusk also draws in things that should not be taken into its house. For instance, a grain of sand, a worm, a parasite, or even an unhatched egg may find itself resting between the two halves of the shell. Of course, the mollusk tries to wash it out. But should this not get rid of the intruder, it does a very interesting thing. It covers the object with a blanket of carbonate of lime, just like the inside of its shell. Gradually, the object assumes a round or odd shape, and takes on the colors and luster of the mantle. It may be pink, yellow, purple or white, or even black.

Many people think pearls can be found only in oysters; many others know that rivers and lakes throughout this part of the United States produce some of the most beautiful of pearls. The mussels and clams found in streams of Wisconsin, Minnesota and Arkansas yield pearls worth from \$100 to \$1,000 each.

When the strange earthen structures of the Ohio Mound Builders were opened quantities of pearls were found. Some had been bored for use as beads for necklaces; some had been set into perforated and cut bear teeth, or used as eyes in heads cut from antlers. From the great number found, it is evident that the Mound Builders spent much

time in fishing for the mussels which lived in the Ohio River and its branches. In the Little Miami River, which is not far from Chicago, have been found pearls of a most beautiful rose-pink color.

During the Spanish invasion of Mexico, Cortez and his men found the natives, who lived along the Gulf of Lower California, busily engaged in the pearl-fishing industry. The finest black pearls in the world have been secured from oysters inhabiting these waters, so we are not at all surprised to learn that Cortez sent a number of the finest back to the Queen of Spain.

The most important pearl fisheries in the world are in the Indian Ocean. There the pearl-oysters group themselves on coral-beds ranging from twenty to thirty feet below the surface. They are attached to the corals by means of strong fibers which must be cut before the animals can be brought to the surface and loaded into boats. Fishing for such oysters is dangerous work, as the warm waters are infested with sharks and few of the divers use diving apparatus.

During March and April, thousands of divers are engaged in fishing for the pearls. In the waters about Ceylon, the fisheries are under government control and are very carefully guarded. Each group of divers works in an area which has been staked off. When this has once been examined thoroughly for the oysters, it is left alone for seven years in order to give a new crop a chance to grow. The pearls found in this area are the finest in the world and bring the highest prices.

Pearls have been sought for two purposes. First, they are used in decorative jewelry, and secondly, they are used in making medicines. Such medicines are especially popular in India and China. The pearls thus used are very small and are known as "seed pearls," and are ground into a fine powder. The most famous pearls are in crown jewels. The very largest known pearl is said to be in the possession of the Shah of Persia. This gem is one and a third inches long and one inch wide.

Thus may a tiny grain of sand or a parasite within a mollusk's shell cause the animal to produce one of the most precious of gems.

MARGARET M. CORNELL, Guide-lecturer

Note: In Stanley Field Hall, in the H. N. Higinbotham Hall and in Hall 3 are many exhibits showing pearls.

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*Save your Museum Stories. You will find them useful for looking up things you may want to know.*

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STEPHEN C. SIMMS, Director

# MUSEUM STORIES FOR CHILDREN

*Presented by*

*The James Nelson and Anna Louise Raymond Foundation  
for Public School and Children's Lectures*



Series XVI, Number 8

April 11, 1931

FIELD MUSEUM OF NATURAL HISTORY

Roosevelt Road and Lake Michigan  
CHICAGO

## ASBESTOS

According to legend Charlemagne had a tablecloth which when soiled was thrown into a fire and when withdrawn was cleansed but otherwise unchanged. The explanation is really quite simple—the table-cloth was made of asbestos. That wonderful material was known long before the time of Charlemagne, however, being not only known, but actually used by the Romans and still earlier by the Greeks.

Asbestos looks like a vegetable fiber, but it is mineral matter entirely. The word asbestos is not the name of a distinct mineral, but is a name given to any mineral that can be separated into flexible fibers. There are several minerals which have been called asbestos, but those which are mined at the present time are limited to fibrous forms of the two common minerals, amphibole and serpentine. These two minerals are common enough in rocks, but usually they are in crystals or in massive form, so that the fibrous form is not at all common. Just why these minerals sometimes occur in the fibrous form is not known.

Since most of the world's supply of asbestos comes from Canada, it might be well to know how it is mined in that country. It is found in veins just as many other minerals, such as gold, silver, and copper. Where it is close to the surface of the ground the mining is done in open pits or quarries; where the asbestos is deeper down the mining is done in underground chambers. When the mineral is taken from the earth, it is not pure, so it is passed through a cleaning process which the miners call milling. Milling frees the asbestos from dirt and other rock by first crushing and then sorting it. All through the milling great care is taken not to break the fibers, for the longer they are the more valuable is the asbestos.

Some asbestos products, such as cement, fireproof paints, packings, and insulating materials, are made of crushed mineral and the length of the fibers for such uses is not of so much importance. For spinning purposes, and many of the products are of spun asbestos, the longer the fibers the greater is their value. Such fibers are treated in very much the same manner as vegetable or animal fibers. After being carded, they are spun into yarn or thread, or woven into cloth. Some fibers are felted into sheets.

The uses of asbestos are many and varied. Besides those already mentioned, it is marketed as brake lining, fireproof lumber or shingles, cloth, asbestos paper, boiler and pipe coverings, and many similar products. Its particular value lies in the fact that asbestos is a flexible fiber which does not burn. If heated to a high enough temperature, however, it will melt. Another valuable quality of asbestos is that it is not affected by many strong acids.

Canada leads the world by producing three-fourths of the more than 350,000 tons used each year. South Africa is second, having displaced Russia since the war. In the United States a little is mined, but not nearly enough for our own needs, as our country manufactures more asbestos products than all of the rest of the world put together.

The word asbestos is derived from a Greek word meaning "never be quenched." The Greeks knew that asbestos resisted fire, but they had an idea that if it could once be lighted it was impossible to extinguish the flame. That, of course, isn't true, but the word still has that meaning.

There are many interesting references to asbestos in the writings of the ancients. Plutarch wrote of perpetual wicks which the Vestal Virgins used in their lamps—being of asbestos they could never burn away. Pliny called it "linum vivum," the funeral dress of kings, because several monarchs had been buried in asbestos robes.

There is a legend, still believed in parts of Europe, that the Pope has an asbestos cloth in which he keeps the Sudarium of Our Lord, that is, the napkin which was wrapped around the head of Christ when he was laid away in the tomb.

FRANKLIN C. POTTER, Guide-lecturer

Note: Asbestos exhibits are to be found in Hall 37. In the mineral collection, Hall 34, there are exhibits of amphibole and serpentine. Be sure to see the blue asbestos from South Africa.

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April 18, 1931

FIELD MUSEUM OF NATURAL HISTORY

Roosevelt Road and Lake Michigan  
CHICAGO

## PALMS

Many years ago Linnaeus, a famous botanist, called the palms the "Princes of the Vegetable Kingdom." These wonderfully graceful palms form a picturesque part of the tropical landscape. Many of the palms have tall, straight trunks, each one bursting out at the very top into a rosette of leaves.

The leaves making up this crown of beauty and elegance are either fan-shaped or feathery. Often they are gigantic; in some palms the leaves are fifty feet long and eight feet wide.

The rather small flowers are either white, pale yellow or green. The exquisite odor of some palm flowers is something like that of mignonette and is often noticed miles away from the trees. Sangapilla Palm flowers preserve their fragrance for months, even after the blossoms are withered and dried. Some of the Indian maidens in Peru wear these sweet, dried flowers in their hair and put them in their beds.

While many of the palms are tall trees, a few are small shrubs, low and spreading. A small number of palms are not able to stand and support themselves but scramble around over other trees and plants. The Rattan Palms are among these vine-like ones. Their stems are very long and slender and are used in making wicker furniture.

Of all the palm trees with useful products the Coco Palm is the most important. The leaves are split and woven into baskets or used for thatching roofs; the bast-like leaf sheaths are used for clothing; the wood is used to make carved ornaments; and the most important part of the tree is, of course, the coconut. The shredded coconut, which is used so much in candies and on cakes, is made from the fresh meat from the inside of the nuts. When dried, the meat of the coconut is known as copra. Valuable oil is squeezed from the copra which is used in making soaps and butter substitutes. The husk around the coconut is made up of strong fibers which are made into mats and ropes. Even the shells of the coconuts are important; delicate designs are carved on these shiny black or brown shells making them into quaint drinking cups and dippers.

The so-called double coconut, the fruit of a very different palm, is sometimes called "coco de mer," which means coconut of the sea. This is the most celebrated palm of former days because of the mysteries which surrounded it. For many years the large double nuts were only found floating on the waters of the Indian Ocean or washed up on the shores. Many legends were known concerning these nuts. All of the

legends agreed upon one thing—that the mysterious nuts had a supernatural power to cure poison. Thus they were sold at enormous prices. According to one legend believed by a large number of natives, the nuts grew on palm trees on the bottom of the ocean. Sailors said the trees could be seen at the bottom of quiet bays, but if anyone tried to dive for the trees they all disappeared.

The nuts and their trees remained a mystery until 1743 when the Seychelles Islands were discovered off the east coast of Africa. There, growing in great abundance, were the double coconut palms. Many of the trees grew close to the shore and their fruits fell into the ocean. The nuts were thus washed far away causing all the superstitions and legends.

Perhaps one palm whose fruits you are familiar with is the Date Palm. Dates have been used as food for centuries. This palm seems to thrive in the dry areas of Arabia and Egypt where the heat is intense in the daytime and at night frosts often nip the leaves. There are many different kinds of dates. Bagdad alone has forty or fifty different kinds. Some of the dates have romantic names such as "lady's fingers" and "pretty maiden's eyes."

The Talipot Palm is one of the most beautiful of palms. When the palm has reached full growth, a huge bud, four feet in height, appears at the very tip of the tree. Suddenly this bud bursts with a crack, then slowly unfolds into a majestic pyramid of creamy-white blossoms which rises twenty feet above the withering leaves. The fruits soon develop and within a year after this final show of splendor, the tree topples over and dies like a weed.

In Florida you may see tall and stately Royal Palms bordering the avenues. The same palms in South America are used by the Indians; they build their houses of the wood, thatch the roofs with the leaves, make ropes and baskets of the leaves, fashion raincoats from the leaf stalks, use the young leaves for food and even make wine from the berries. Thus the Royal Palm furnishes them necessities while we look upon the palms in Florida as mere objects of beauty, their magnificent leafy crowns towering above the straight stems in splendor.

MIRIAM WOOD, Guide-lecturer

Note: In Hall 25 you may see many different kinds of palms; at the north end of Hall 29 you may see the top of a Coconut Palm in blossom and in fruit.

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STEPHEN C. SIMMS, Director

# MUSEUM STORIES FOR CHILDREN

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FIELD MUSEUM OF NATURAL HISTORY

Roosevelt Road and Lake Michigan  
CHICAGO

## IN THE LAND OF DIKES AND WINDMILLS

How would you like to live below the surface of the sea? You would not have to be a mermaid or a fish to do that. You might be a child in Holland, or the Netherlands, which means the "Low Countries." Most of the western part of Holland is lower than the surface of the ocean, with green fields and prosperous towns where there were once lakes, swamps, and even arms of the sea. The rivers and canals which cross this low, flat country are enclosed between banks or dikes to keep them from flooding the land, for the water is often several feet higher than the fields. Along the seashore the dikes are huge walls of stone many miles long. In some places dunes or sand hills help to wall out the ocean.

The soil of this low country is always damp, and rain water would soon cause floods if it were not constantly pumped up into canals, and from them into rivers which lead to the ocean. Pumping is the most important work of the tall windmills which are still common in Holland, although nowadays steam power often takes their place. In each canal is a gage which looks like a huge thermometer. This shows how high the water rises. If the water rises too fast or too high, pumping into that canal is slowed up or even stopped for a while, and pumping from it into the next larger canal or river is increased, so that the water cannot overflow the dikes and cause a flood.

Large canals form waterways along which many boats pass in warm weather. In winter they still serve as highways. Men and women skate to work or to market, and children to school. Skating is the national sport of Holland, and contests and races are often held. In summer boys and men spend hours fishing in the canals.

Dikes are made so strong and broad that often roads are built on their tops. Still, there is always danger that a trickle of water may find a way through somewhere, and, if not quickly stopped, make the hole larger until the dike breaks down. Children soon learn the importance of watching the dikes. Perhaps you have heard the story of the brave little boy who found a leak, one evening long ago. It was so small that he could fill it with his hand, but he knew that if it were

left it would soon grow to dangerous size. So he sat all night, cold, tired, and hungry though he was, until some men found him in the morning. After they had mended the leak, they told the farmers of all that countryside how one small boy's hand had saved them from flood.

The land of dikes and windmills is also a land of fine small farms. The Dutch people are so fond of flowers that many of them are flower farmers. Their beautiful crops are grown in fields in summer, and in huge greenhouses during cold weather. Cut flowers are shipped by the carload to other countries of Europe. Near Amsterdam the large lake of Haarlem has been drained, and the acres of rich soil which formed its bottom are now covered with fields of tulips, hyacinths, and daffodils. Flower bulbs produced here are sold to gardeners almost all over the world.

A wise man named Erasmus, who lived in Holland long ago, is said to have remarked: "I know a city where the people live like birds, in the tops of trees." He meant Amsterdam, the beautiful Dutch city whose houses rest on logs which have been driven deep into the soft, wet earth to make hard foundations. Often these log foundations move a little, so that the houses lean. Sometimes, in old streets, they seem to put their heads together as if telling each other stories. But though they lean, the walls are too well built to fall.

Though Holland is a small country, it has an exciting history, full of brave deeds in wars with other nations, and with the sea. Sometimes the sea has helped the Netherlanders against their human foes. More than once, when enemy armies threatened Dutch towns, farmers round about have taken refuge in the city, opened holes in the dikes, and flooded the country to drive out the soldiers. Thus even in its methods of warfare, the brave little land of dikes and windmills is different from all others.

JUNE WORK, Guide-lecturer

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